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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,416	09/30/2003	Jui -Mei Hsu	CMOP0024USA	2415

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NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION  
P.O. BOX 506  
MERRIFIELD, VA 22116

EXAMINER
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NGUYEN, THANH NHAN P

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 11/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center"><b>Office Action Summary</b></p>	<b>Application No.</b> 10/605,416	<b>Applicant(s)</b> HSU, JUI -MEI	
	<b>Examiner</b> (Nancy) Thanh-Nhan P. Nguyen	<b>Art Unit</b> 2871	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 August 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 20,22-29 and 31-47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20,22-29 and 40-43 is/are allowed.
- 6) ☒ Claim(s) 31,33-39 and 44-46 is/are rejected.
- 7) ☒ Claim(s) 32 and 47 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 31, 33-39 and 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takao et al (US 5,734,456) in view of Wachi (US 6,819,375).**

Regarding claims 31 and 35, Takao discloses (fig. 1) a liquid crystal display comprising: a lower substrate (3); an upper substrate (2) positioned parallel with the lower substrate; a plurality of pixel units, each of pixel units including an upper transparent electrode (5), a lower transparent electrode (6), and a color filter (11) formed on the upper substrate and above the lower substrate, wherein a surface of each color filter has a plurality of curved convex structures.

Takao lacks disclosure of each of pixel units respectively comprises a reflection layer positioned between the color filter and the lower substrate.

Wachi discloses (fig. 12) a liquid crystal display comprising a reflection layer (21) positioned between the color filter (17) and the lower substrate (20) for the benefit of reflecting light and therefore functioning as reflective LCD device. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have a reflection layer positioned between the color filter and the lower substrate for the benefit of reflecting light and therefore functioning as reflective LCD device.

**Regarding claim 33**, Takao discloses wherein the surface of each color filter, which has the plurality of curved convex structures, is able to scatter light.

**Regarding claim 34**, Takao discloses wherein a distribution density of the curved convex structures is used to regulate brightness and a color deepness of the liquid crystal display.

**Regarding claims 36 and 37**, Takao lacks disclosure of each of the reflection layers includes an opening.

Wachi discloses (fig. 12) each of the reflection layers (21) includes an opening (211) for the benefit of partially reflecting light and partially transmitting light, and therefore functioning as semi-transmissive and semi-reflective liquid crystal display. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have each of the reflection layers includes an opening for the benefit of partially reflecting light and partially transmitting light, and therefore functioning as semi-transmissive and semi-reflective liquid crystal display.

**Regarding claims 38 and 39**, even though Takao lacks disclosure of the liquid crystal display further comprising a plurality of thin film transistors for respectively controlling each of the pixel units, and wherein the thin film transistors are formed on the lower substrate and below the upper substrate, it would have been obvious to one of ordinary skill in the art to have thin film transistor in the device for controlling the pixel units, as evidenced by Wachi (col. 15, lines 61-63), and therefore does not patentably distinguish the invention.

Further, even though Wachi lacks disclosure of wherein the thin film transistors are formed on the lower substrate, it has been determined that the arrangement of parts is within the ordinary level of skill, [MPEP 2144.04 VI (C) Rearrangement of Parts]. Further, rearranging the thin film transistors from upper substrate to lower substrate (corresponding to pixel electrodes) will not change the function the thin film transistors, and therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have the thin film transistors formed on the lower substrate for controlling the pixel units in the display.

**Regarding claim 44**, Takao discloses wherein each of the curved convex structures comprises a smooth surface.

**Regarding claim 45**, Takao discloses wherein each of the curved convex structures comprises a spherical surface.

**Regarding claim 46**, Takao discloses wherein each of the pixel units comprises three of the color filters having a plurality of the curved convex structure respectively.

***Allowable Subject Matter***

**Claims 20, 22-29 and 40-43** are allowed since there is no prior art of record that teaches or suggests a liquid crystal display comprising a relationship of various elements as claimed with the specific allowable subject matter cited in the following: wherein a surface of each color filter has a plurality of curved convex structures, and the upper transparent electrode directly contacts and covers the curved convex structures on the surface of each of the color filters.

**Claims 32 and 47** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. There is no prior art of record that teaches or suggests a liquid crystal display comprising a relationship of various elements as claimed with the specific allowable subject matter cited in the following:

As for claim 32: (wherein a surface of each color filter has a plurality of curved convex structures) and wherein the color filter is covered with the upper transparent electrode directly.

As for claim 47: wherein the curved convex structures have non-uniform sizes.

### ***Response to Arguments***

Applicant's arguments with respect to claims 31, 33-39 and 44-46 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to (Nancy) Thanh-Nhan P. Nguyen whose telephone number is 571-272-1673. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

(Nancy) Thanh-Nhan P Nguyen  
Examiner  
Art Unit 2871



David Nelms  
Supervisory Patent Examiner  
Technology Center 2800